Ceramic

High Pass Filter

HFCE-452+

50Ω 4500to 8500 MHz

The Big Deal

- Rugged, ceramic construction
- Tiny size
- Good power handling

CASE STYLE: SC0202C

Product Overview

Mini-Circuits' HFCE-452+ is a LTCC High Pass Filter with a passband from 4500 to 8500 MHz, supporting a variety of applications. This model provides good passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0202 ceramic form factor with wrap-around terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

Key Features

Feature	Advantages
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Tiny size	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Good power handling	Supports a wide range of system power requirements.

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Generic photo used for illustration purposes only

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+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Features

- Miniature size 0202 (0.026"[0.65mm] x 0.020"[0.5mm] x 0.015"[0.37mm])
- Low Insertion Loss
- Low cost
- Aqueous washable

Applications

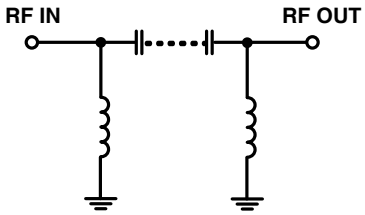
- ISM Band
- WLAN

Electrical Specifications[1,2] at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC - 2500	15	22	--	dB
	Insertion Loss	F4-F5	4500 - 8500	--	0.7	1.3	dB
Pass Band	Freq. Cut-Off	F3	4000	--	2	--	dB
	Return Loss	F4-F5	4500 - 8500	--	15	--	dB

1. Tested on Evaluation Board TB-HFCE-452+
2. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

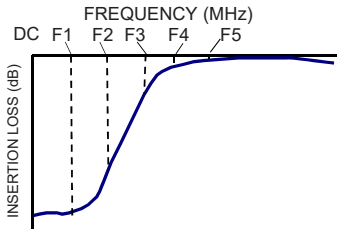
Functional Schematic



Maximum Ratings	
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input[3]	2W at 25°C

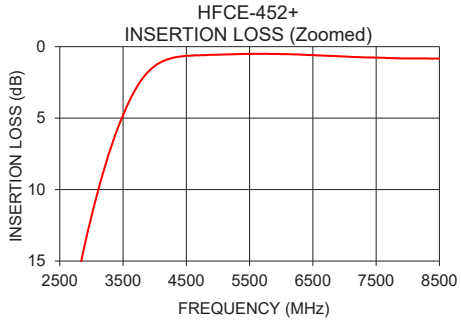
3. Passband rating, derate linearly to 0.5W at 125°C ambient. Permanent damage may occur if any of these limits exceeded.

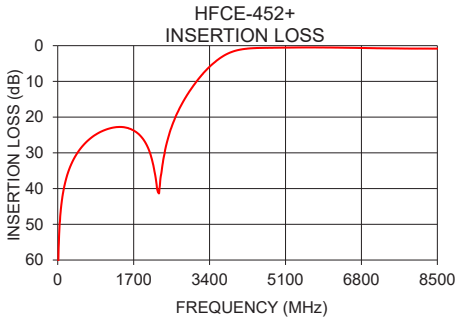
Typical Frequency Response

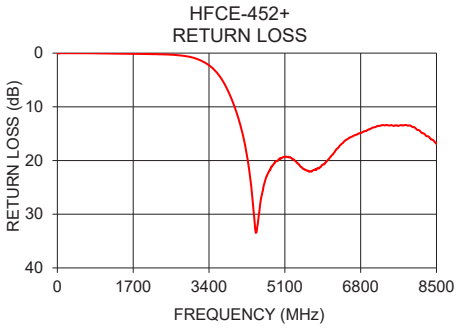


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	61.74	0.05
400	30.84	0.01
800	25.31	0.03
1200	23.05	0.07
1600	23.20	0.12
2000	28.01	0.16
2500	24.63	0.27
2800	15.87	0.48
3200	8.60	1.32
3600	3.81	3.88
4000	1.35	10.63
4500	0.64	31.33
5200	0.54	19.42
5600	0.50	21.87
6000	0.52	20.54
6400	0.57	16.76
6800	0.65	14.87
7200	0.73	13.55
7600	0.77	13.48
8500	0.83	16.84







Notes

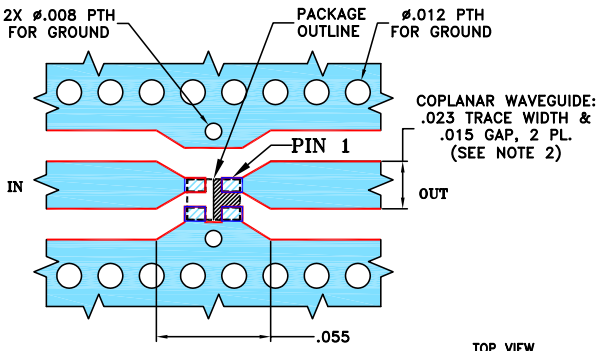
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Pad Connections

INPUT	2
OUTPUT	1
GROUND	3,4

Product Marking: N/A

Evaluation Board MCL P/N: TB-HFCE-452+
Suggested PCB Layout (PL-567)



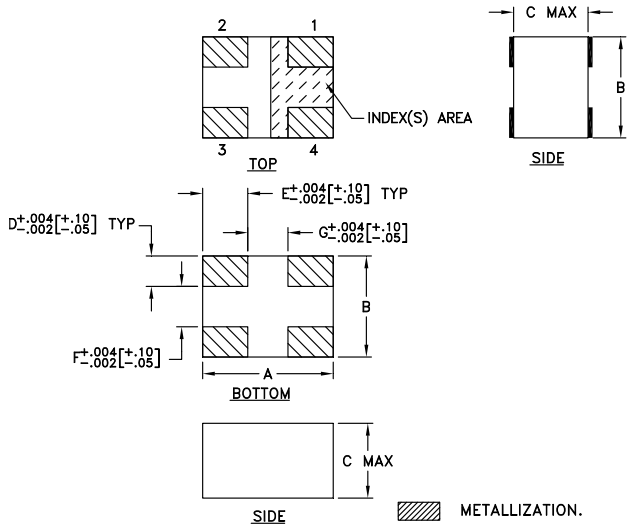
NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .008"±.001"; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. LAYER 3 AND LAYER 4 OF THE PCB ARE CONTINUOUS GROUND PLANES.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	wt
.026	.020	.015	.006	.009	.008	grams
0.66	0.51	0.38	0.15	0.23	0.20	0.0005